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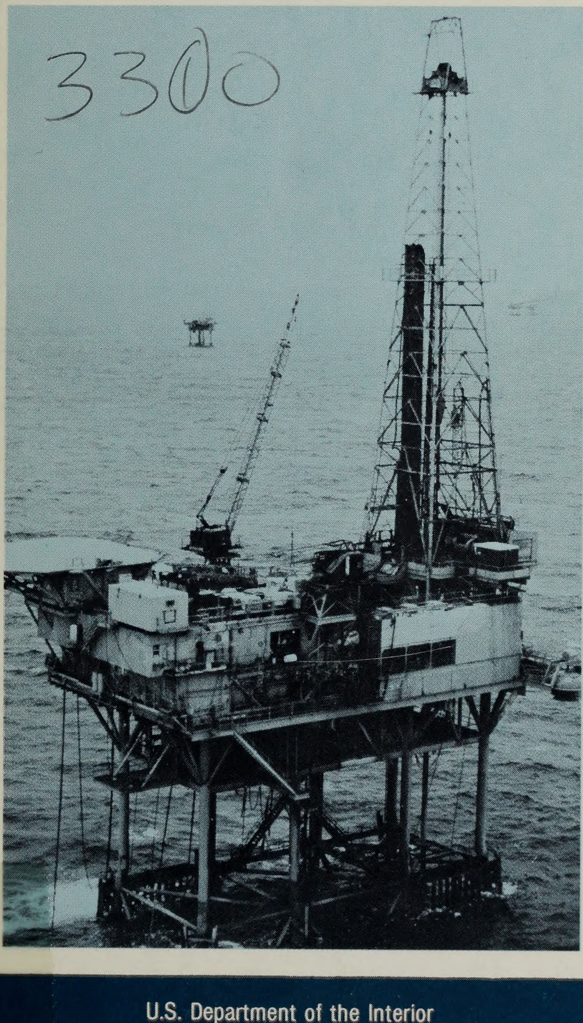

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LEASING AND MANAGEMENT OF ENERGY RESOURCES ON THE OUTER CONTINENTAL SHELF

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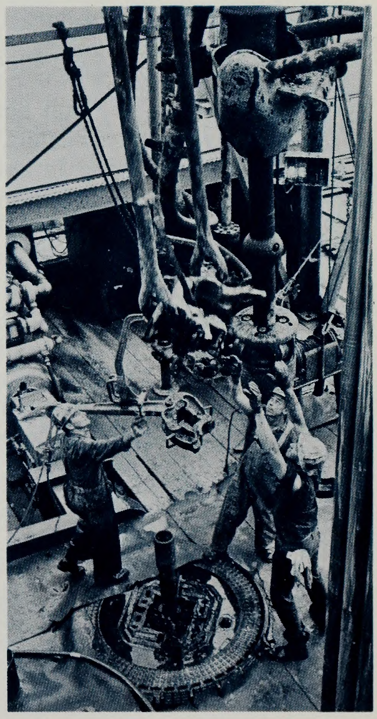

I. PREFACE

Expeditious development of the Outer Continental Shelf (OCS) is essential to meeting the energy needs of this Nation during the remainder of the 1970's and through the 1980's. This period will be a particularly critical one in terms of energy supply and demand. With the exception of increased direct use of coal in powerplants, we cannot expect new or alternative energy sources—such as coal gasification, oil shale, nuclear fusion, fast liquid metal breeder reactors, geothermal fields, solar energy, or windpower—to be sufficiently developed in this time to replace our use of petroleum.

Some steps have already been taken to conserve our use of energy, particularly petroleum, and more are needed. However, even with sound conservation practices, the Nation will require more petroleum in the future. I believe that the OCS oil and gas deposits can provide the largest single source of this needed petroleum within the United States during the next 15 years when we most need it. And, the OCS can supply this energy with less damage to the environment and at a lower cost to the U.S. economy than any other alternative source of petroleum.

We have learned a great deal since the Santa Barbara spill in 1969 about how to produce safely oil and gas in the offshore areas. There is, of course, more to be learned, and we intend to improve still more our capability to conduct safe operations offshore. Extensive environmental studies will be conducted in each OCS area before development is allowed to occur. If these studies show that development will result in an unacceptable environmental risk, we will not issue leases in that area. We intend to make such decisions with full participation of the public, including the scientific community, elected officials, and interested citizens. The Federal Government is also moving ahead in cooperation with the States with studies to assure that both onshore environmental and socioeconomic impacts are fully evaluated.

This booklet describes the rules, regulations, and procedures that the Department of the Interior follows in leasing and supervising oil and gas resources of the OCS. It highlights the number of opportunities that State and local governments and the public at large have to interact with the Department to assure that the concerns of all Americans are addressed before development proceeds. I am confident that leasing, exploration, and development can proceed in an orderly and cooperative way, and that problems confronting us in opening new OCS areas can be resolved.

Thomas S. Kleppe

Thomas S. Kleppe
Secretary of the Interior

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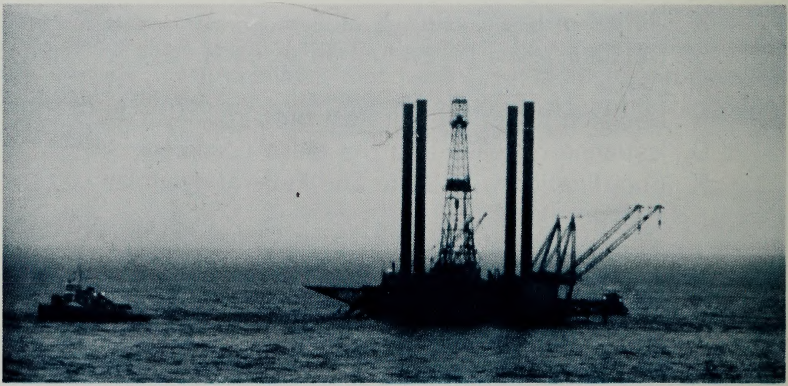


II. INTRODUCTION

The U.S. Department of the Interior has been designated by the Outer Continental Shelf Lands Act of 1953 to carry out the majority of the Act's provisions for administering the mineral leasing and development of the offshore areas under Federal jurisdiction. Two bureaus in the Department—the Bureau of Land Management and the U.S. Geological Survey—have been assigned the majority of activities necessary to ensure the timely development of those mineral resources, safety, environmental protection, and resource conservation.

A number of other Federal agencies are also involved in the administration of the Outer Continental Shelf (OCS). Under the provisions of the Act, the U.S. Army Corps of Engineers is responsible for the prevention of obstruction to navigation. The U.S. Coast Guard promulgates and enforces regulations on lights and other warning devices, safety equipment, and other matters relating to safety of life and property. The Coast Guard is also responsible for the formulation and implementation of the National Oil and Hazardous Materials Contingency Plan as well as local pollution contingency plans. The Environmental Protection Agency (EPA) is generally responsible for pollution control and waste disposal. The focus of this publication, however, is upon the activities of the Department of the Interior.

Section III summarizes the areal extent of the Continental Shelf, the history of petroleum development offshore, and the geological explanation of where and why petroleum has accumulated in certain offshore areas. Section IV identifies the major statutory authority for OCS mineral development. The various functions involved in the leasing procedure are described in Section V, including the selection of tracts for leasing, collection of geological and geophysical data before leasing, environmental baseline and impact studies, conduct of a lease sale, and the major terms of the contract.

Section VI briefly explains the actions that the successful bidder (an oil or gas company) takes in exploring and developing an OCS oil and gas lease. The Federal actions taken to supervise and regulate those activities of the lessee are described in Section VII, including the supervision of drilling and production operations, actions taken in the event of an oil spill, production control, and royalty accounting. Section VIII identifies the key actions that have been taken since the 1969 Santa Barabara oil spill to improve safety and pollution control on the OCS. The booklet concludes with a list of basic statistics about offshore oil and gas activities.

III. CONTINENTAL SHELF

A. Location and Areal Extent

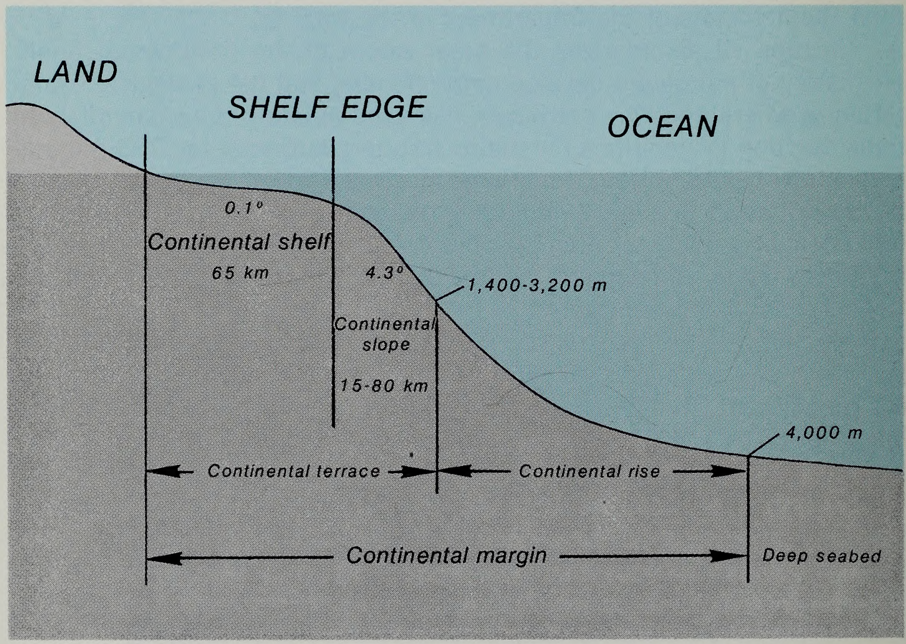
The submerged extension of a continent is called the continental margin. In most areas, it consists of the gently sloping continental shelf and the more steeply dipping continental slope. In some areas, an apron of debris derived from the continent—the continental rise—extends from the base of the continental slope to the abyssal ocean floor and covers the edges of the continent.

Defined either in geologic or exploitability terms, the contour and extent of the shelf vary from one coastal area to another. It is relatively narrow along the Pacific Coast, moderately wide along much of the Atlantic Coast and the Gulf of Alaska, and broad in the Gulf of Mexico and around western and northern Alaska. The Continental Shelf with water depths up to 200 metres (656 feet) totals 853,300 square miles or 546,112,000 acres.

B. History of Offshore Petroleum Development

The earliest offshore oil production in the United States was off Summerland, California, in 1896, an extension of an onshore discovery made before 1894. The offshore wells were drilled from wooden piers

Profile of the continental margin.

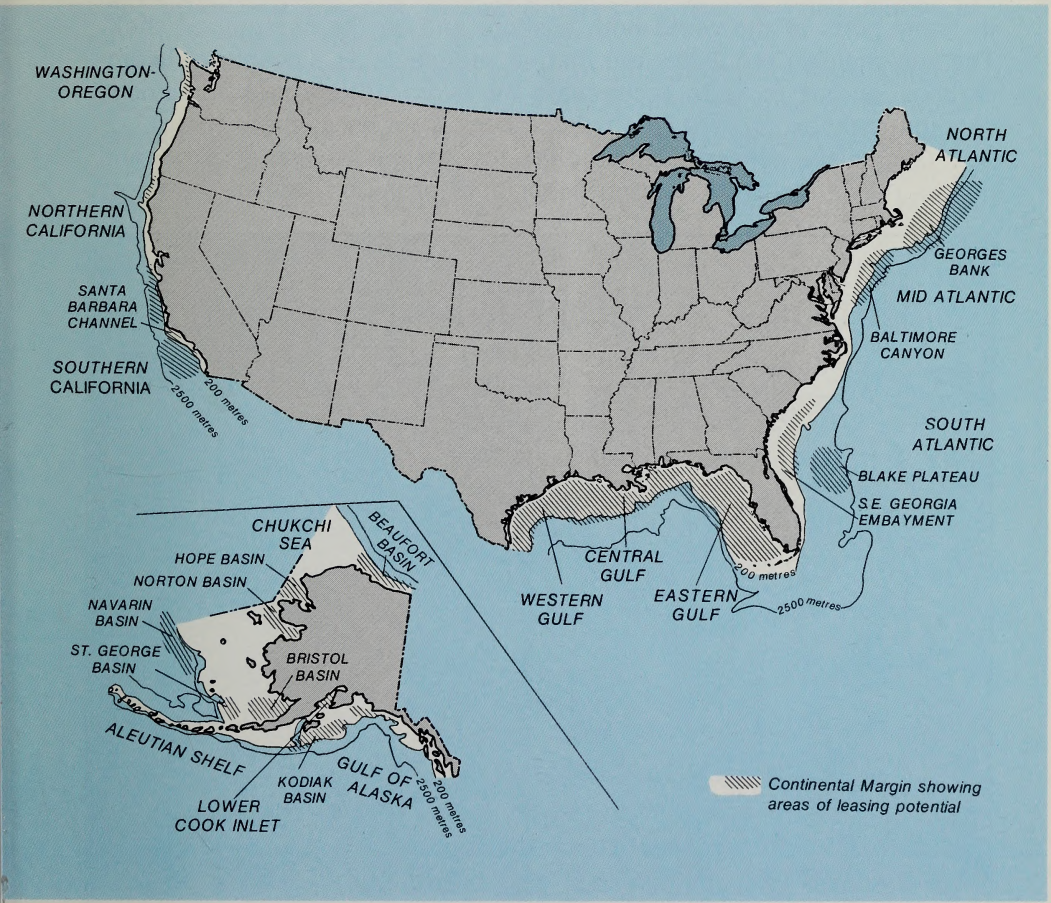


extending from the shoreline. In all, more than 400 wells were drilled and completed at a depth of about 600 feet.

The 1938 discovery of the Creole field in the Gulf of Mexico, 1½ miles from shore in 26 feet of water, marked the petroleum industry's first successful venture into open, unprotected waters. In November 1947, a discovery was made in Ship Shoal Block 32, 12 miles from the Louisiana Coast in water 16 feet deep. This well was the first to be drilled out of sight of land. It was also the first to be drilled from a mobile platform, initiating the technology that has subsequently been utilized to drill more than 18,000 offshore oil and gas wells in the waters of the United States.

From this beginning, technology has advanced to the stage that production platforms have been installed in the Gulf of Mexico in water depths up to 373 feet. Leases with water depths up to 1,200 feet in the

Outer Continental Shelf areas under leasing consideration.



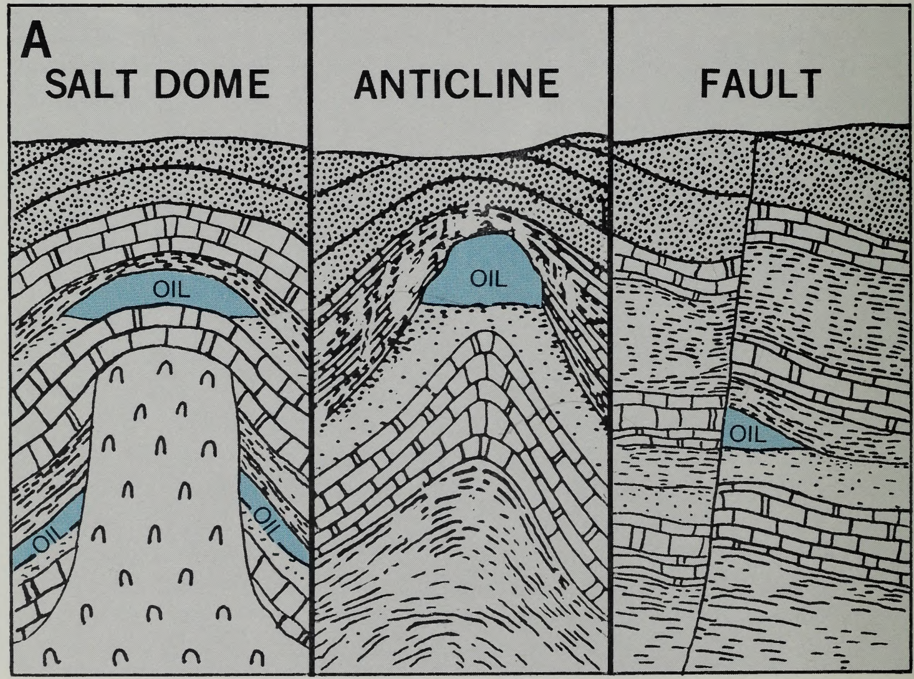
Gulf of Mexico were sold in 1974. In the Santa Barbara Channel, off California, seven exploratory wells have been drilled in water more than 1,200 feet deep. One of the discovery wells was drilled to a total depth of 10,453 feet in 1,497 feet of water. In the same area of the Santa Barbara Channel, a fixed drilling and production platform, 940 feet tall to be placed in 850 feet of water, is under construction.

More than 12,605 wells have been drilled offshore in Federal waters (Federal-State jurisdiction in IV.A.). The Federal Government from 1954 through 1974 has sold 2,384 oil and gas leases comprising 10,884,624 acres. Federal leases have produced 3.6 billion barrels of oil and 24.2 trillion cubic feet of gas. The Federal Government has received on behalf of the people of the United States more than $18.2 billion in bonuses and royalties from these OCS leases.

C. Geology of Petroleum Occurrence

Oil or crude petroleum is found beneath the surface of the Earth in many parts of the world both onshore and on the continental shelf. The key geologic requisites are marine sediments as a source of hydrocarbons, porous rocks to accumulate the hydrocarbons, and impervious capping rocks to prevent the hydrocarbons from escaping.

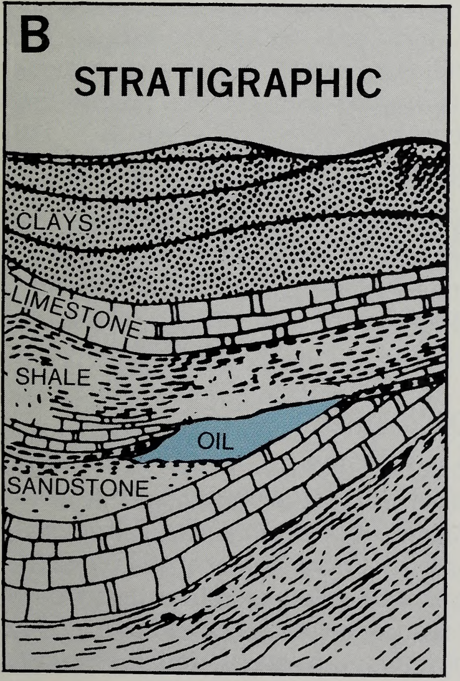
Geologists generally agree that the various layers of sand and porous rock which now contain deposits of crude oil formed the floors



of great bodies of water millions of years ago. A great volume of marine life and other organic matter accumulated on the bottom of all large bodies of water. Pressure was applied to these accumulations by thick deposition of inorganic sediments. This pressure, together with the heat of the Earth, may have produced oil and gas from the organic matter. Chemists have proved that organic matter may be transformed into oil and gas by long continued heat and pressure aided by bacterial action. Gradually, over long periods of time (millions of years), some of the oil and gas so formed moved into porous rocks.

Porous sedimentary rocks, such as sandstone, act as depositories or *reservoirs* for oil and gas if there is some geologic condition that acts as a seal. The seal, or trap, may result from the structure of the rock, such as a fold, salt dome intrusion, or fault, in which case it is called a structural trap. Or it may simply result from a loss of porosity or permeability of the host rock which prevents further migration of the oil and gas, in which case it is known as a stratigraphic trap. Often, the trapping mechanism results from a combination of structural and stratigraphic factors.

Oil is not a homogenous compound but a mixture of many different ones. Two elements—hydrogen and carbon—are combined in countless, complex, and varying proportions. In crude oils the amount of hydrogen varies from 10 to 15 percent and carbon from 80 to 89 percent by weight. Oil is usually mixed with natural gas and saltwater within porous



Porous rocks, such as sandstone, can act as reservoirs for gases and liquids if they lie adjacent to an impenetrable seal.

A. **Structural Traps**—created when porous rocks are tilted and folded, providing reservoir conditions suitable for the accumulation of petroleum.

B. **Stratigraphic Trap**—formed by changes in the porosity of a rock formation.

rocks varying from 1 to 500 feet in thickness (like ink in porous blotting paper). In any trap, gas, being the lightest, tends to accumulate at the top. Lighter than water, oil also in time separates from it and accumulates in the upper part of the trap.

D. Potential of the Continental Shelf

The Geological Survey and the Bureau of Mines classify the oil and gas potential of the United States, including the Continental Shelf, in four categories. The oil and gas in discovered reservoirs which can be produced economically with existing technology are referred to as *measured reserves*. *Indicated reserves* are the additional quantities of crude oil in known reservoirs (in excess of the measured reserves) which are believed to be economically available by application of fluid injection, whether or not such a program is currently installed. *Inferred reserves* are quantities of oil and gas in known oil and gas fields that probably will be found by further drilling through extensions of producing horizons and discovery of new pay zones. From geologic data and theory, it can be deduced that oil and gas *may* exist in other specific parts of the Earth's crust even though no wells have been drilled to determine whether reservoirs exist, how much oil and gas they may contain, and how much might be recovered. The estimates made from such geologic inferences are called *undiscovered recoverable resources*. Because only a small part of the U.S. Continental Shelf has been explored and drilled, most of its *potential* resources remain in the last category.

IV. STATUTORY AND REGULATORY AUTHORITY

Jurisdiction over the Continental Shelf is divided between the Federal Government and the adjacent coastal States. Management of the mineral resources in the area under Federal jurisdiction—commonly referred to as the Outer Continental Shelf—is the responsibility of the Department of the Interior.

A. Statutes and Legal Description

The jurisdictional question concerning the Continental Shelf was resolved in the 1940's and 1950's as it became obvious that the technology existed to develop the petroleum potential of the submerged offshore lands. In 1947, the U.S. Supreme Court upheld a 1945 Proclamation by President Truman stating that the Federal Government possessed full power over the lands and natural resources in the submerged land area off the coast of the United States from the shoreline seaward.

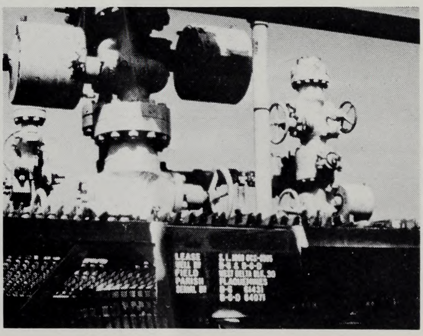
In response to demands and reactions of the coastal States to earlier rulings, Congress in 1953 enacted two laws granting certain offshore lands and their resources to the coastal States and establishing procedures for developing the mineral resources of the part of the Continental Shelf reserved for all the people of the United States. One, the Submerged Lands Act of May 22, 1953, granted the coastal States a belt of submerged lands seaward of their coastlines to a distance of 3 geographical miles. A greater area might be granted to a coastal State if there were evidence that the State had been given jurisdiction over a large area either before becoming a State or by Congress since statehood (for example, Florida and Texas). Recent rulings by the U.S. Supreme Court have further defined the 3-mile demarcation line in *The United States* v. *Maine* on March 17, 1975.

The other law, the Outer Continental Shelf Lands Act of August 7, 1953, reaffirmed that, in general, those lands beyond the 3-geographical-mile limit are subject to the jurisdiction of the Federal Government for the benefit of the entire Nation. It further authorized the Secretary of the Interior to prescribe necessary regulations and to grant mineral leases for the OCS lands.

While the shoreward boundary of the OCS has been defined, the seaward extent of Federal or national jurisdiction is still being determined through international negotiations. The 1958 Geneva Convention on the Continental Shelf, which the United States ratified in 1961, defines the seaward limit of the Continental Shelf ". . . to a depth of 200 metres or, beyond that limit, to where the depth of the superjacent waters admits of the exploitation of the natural resources of the said areas; . . ." One of the objectives of the Law of the Sea Conference now in progress is to reach agreement on a more precise definition of the seaward limits of national jurisdiction over seabed resources.

B. Regulations

The Secretary of the Interior and his delegates administer the provisions of the OCS Lands Act for leasing and operations on the leased areas. For OCS oil and gas, the Secretary has promulgated operating regulations contained in Part 250 of Title 30, which are administered by the Geological Survey, and leasing regulations contained in Part 3300 and Subpart 2883 of Title 43 of the Code of Federal Regulations, which are administered by the Bureau of Land Management.



The Bureau of Land Management may add stipulations to lease contracts to meet special situations. For example, protective requirements have been added to certain Gulf of Mexico leases near reefs with unique environmental conditions, and mandatory unitization requirements have been placed on leases involving royalty bidding.

The Geological Survey issues OCS Orders and Notices that govern most of the day-to-day drilling and production operations on leases and may place special stipulations on geological or geophysical surveying permits for unleased lands or on authorizations to proceed with drilling or production on leases.

V. LEASING PROCEDURE FOR THE OUTER CONTINENTAL SHELF

The sequence leading to the leasing of OCS areas of oil and gas development is the responsibility of the Bureau of Land Management, which is the primary manager of Federal lands under the jurisdiction of the Department of the Interior. The initial step in this leasing process is the selection of general areas for inclusion in a lease schedule. If an area is scheduled for a possible lease sale, several activities occur before a final decision to hold a lease sale is reached: (1) an acceleration of industry's collection of geological and geophysical data under Department of the Interior permits; (2) the Department of the Interior environmental baseline studies; (3) the Department's tract selection, environmental impact statement, and sale decision process; and (4) a detailed resource evaluation of each tract.

A. Leasing Schedule

A leasing schedule is the framework used to determine the timing and initiation of procedures for individual sale areas. Factors influencing the selection of areas for the schedule include initial assessments of oil and gas potential as estimated by both industry and Government, environmental resources that might be affected by OCS development, alternative energy sources, the availability of technology, and the proximity to markets. These are weighed and balanced in developing a schedule of proposed lease sales that will result in the most expeditious discovery and production of oil and gas. The schedule is continually being updated and revised within the Department of the Interior. Key considerations in this process are the three underlying objectives of the leasing program: (1) orderly resource development, (2) protection of the environment, and (3) receipt of fair market value from the sale of leases and the production of oil and gas.

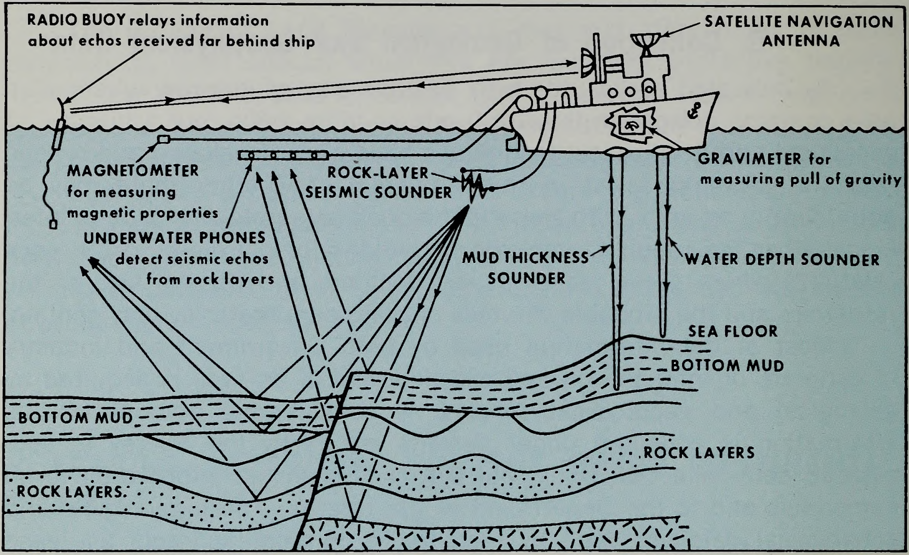
B. Collection of Geological and Geophysical Data

As indicated earlier, the only positive way of knowing whether an area contains petroleum is to drill one or more wells, but a number of geological and geophysical techniques have been developed and refined over the years to assist in the *prediction* of whether there may be petroleum in an area. With these techniques, attempts are made to infer: (1) whether the requisite geologic conditions for petroleum occurrence exist, (2) where these reservoirs are located, and (3) the size of the reservoirs and the probable volumes of petroleum that they may contain.

Most of the information used by both Government and industry to estimate or infer the oil and gas potential of an area is acquired by geological and geophysical surveys. A considerable amount of this information is collected under permits issued by the Survey to specialized data-collection firms that sell or furnish the information to oil companies and to the Department of the Interior. These geological and geophysical data are used by industry in nominating tracts for lease and preparing bids for lease sales. The Department of the Interior uses the information for identification of a general sale area, tract selection, and resource evaluation.

By measuring the velocity of shock or seismic waves through various rock formations, geophysical surveys provide information about the thickness and depth of various layers of rock and the probable location and existence of salt domes, folds, or faults. Information about

Geophysical survey ship underway in search of areas favorable for drilling.

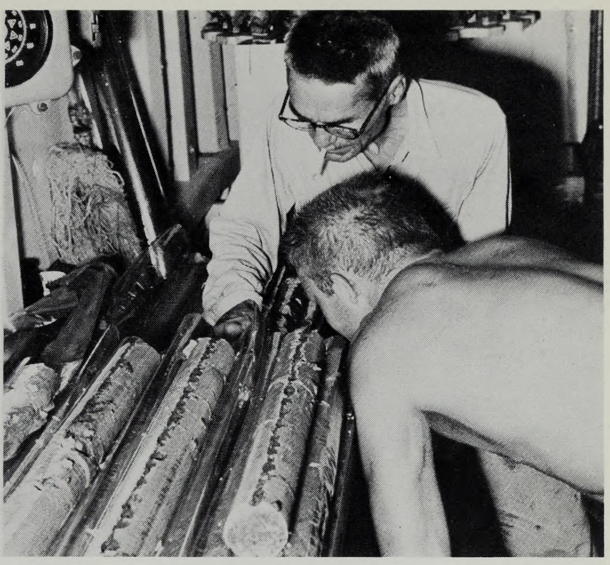

RADIO BUOY relays information about echos received far behind ship
SATELLITE NAVIGATION ANTENNA
MAGNETOMETER for measuring magnetic properties
ROCK-LAYER SEISMIC SOUNDER
GRAVIMETER for measuring pull of gravity
UNDERWATER PHONES detect seismic echos from rock layers
MUD THICKNESS SOUNDER
WATER DEPTH SOUNDER
SEA FLOOR
BOTTOM MUD
BOTTOM MUD
ROCK LAYERS
ROCK LAYERS

Schematic showing marine seismic prospecting method.

the deeper layers is used primarily for evaluating the petroleum resource potential. Information about shallow layers identifies potentially hazardous conditions such as surface faulting, potential slide areas, or shallow gas pockets. This type of information is valuable in the choice and evaluation of drilling platform locations.

Geological surveying of the OCS consists of bottom sampling, shallow coring, and deep stratigraphic testing. These data are useful in determining the general geology of an area and whether the right type of rocks exist for petroleum formation and accumulation. Bottom samples are obtained by dropping a weighted tube to the ocean floor and recovering it with an attached wire line. Depending upon the nature of the ocean floor, penetration is normally limited to a few feet. Shallow coring is performed by conventional rotary drilling equipment to obtain a near-surface sample of the rocks of the seabed. Choice of location is carefully controlled to avoid any geologic hazards, faults for example, or environmentally sensitive areas. Penetration is limited to several feet of consolidated rock. Sometimes in totally unexplored areas, deep wells will be drilled "off structure"—that is on a site unlikely for petroleum accumulation—to determine the geologic character or stratigraphy of the rock strata at depth. The location of such wells for stratigraphic tests (rock samples and electronic tests within the hole) is carefully controlled by a permit issued by the Survey. The wells, which may be 20,000 feet deep, provide information that can be extrapolated to adjacent areas where geophysical data or other evidence suggest that reservoirs might

Studies are made from shallow sediment cores taken from the seabed.



be found. When the geophysical and stratigraphic evidence are combined, the possible presence and volume of petroleum can be predicted with greater accuracy, but exploratory drilling is still required to determine whether or not oil or gas are actually present.

C. Environmental Baseline Data Studies

In areas where there has been no previous leasing, environmental studies are conducted to establish bench mark information. Measurements taken thereafter during what is known as the monitoring phase can be compared to this bench mark to detect environmental trends including those related to exploration and development activities. The bench mark and monitoring data together make up the baseline information. These baseline studies are designed by the Bureau of Land Management after a thorough assessment of published and unpublished data, on-going research, and planned research. Environmental symposiums held near the area to be studied help to develop information on the area and to identify problems that require attention.

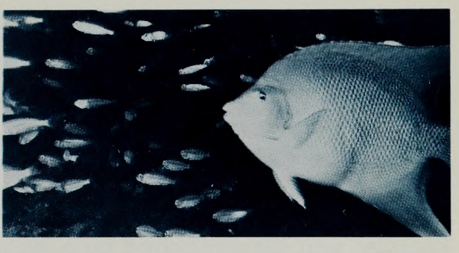
The baseline study design is reviewed by the Outer Continental Shelf Environmental Studies Advisory Committee. This committee was originally established in March 1974, and reconstituted and renamed in December 1975, to advise the Department on the design and implementation of environmental studies of the OCS. It consists of a chairman appointed by the Assistant Secretary for Land Water Resources and representatives of the Governors of the 22 Coastal States, the Environmental Protection Agency (EPA), the National Oceanic and Atmospheric Administration (NOAA), the Coast Guard, and the National Science Foundation, plus 6 individuals from the general public. Representa-

tives of the Bureau of Land Management, Geological Survey, and Fish and Wildlife Service also participate. This committee is the technical counterpart to the OCS Advisory Board to which it reports. The Outer Continental Shelf Advisory Board was established in October 1975 to provide a formal mechanism for the Department to receive views and recommendations from the coastal State officials and to provide a forum for effective dialogue between the coastal States and the various Federal agencies involved in and responsible for mineral development of the Outer Continental Shelf. This Board is chaired by the Secretary of the Interior with representatives from the 22 coastal States, 7 Federal agencies, and the Department of the Interior, plus 6 members from the general public.

Environmental baseline studies cover a wide range of disciplines, including geology, geophysics, biology, physical oceanography, meteorology, and trace-element and hydrocarbon chemistry. Conducted by universities under contract, NOAA, and the Survey, the studies include both the generation of original data as well as the analysis of existing information.

The results of these efforts are used by the Department in making decisions on the development of marine mineral resources. The data are useful in tract selection, environmental impact analyses, formulation of lease stipulations, and modification of OCS operating orders or leasing and operating regulations.

Environmental baseline studies: by bottom drilling, plant and animal life are collected and studied (left); species are identified for essential bench mark data, (right).

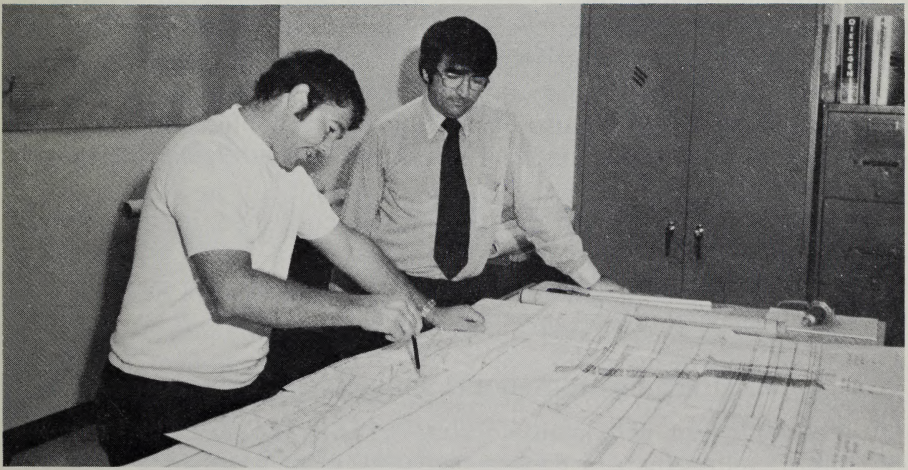


After the baseline study is completed and a lease sale is held, environmental monitoring is begun to determine the effects of petroleum exploration or production activities. If adverse changes are detected, lease stipulations or the OCS operating orders are adjusted to counteract them.

D. Resource Reports and Preliminary Assessment

After an area has been scheduled for a possible lease sale, the Bureau of Land Management assembles a preliminary assessment of the area's petroleum potential, environmental problems, conflicts with other resource values such as fisheries or conflicts with other uses of the area such as transportation or defense purposes. This assessment is made from *resource reports* requested by the Bureau of Land Management from other Federal bureaus and departments having the appropriate expertise, such as the Geological Survey, Fish and Wildlife Service, National Park Service, Bureau of Outdoor Recreation, Bureau of Mines, Bureau of Indian Affairs, Forest Service, NOAA, EPA, U.S. Coast Guard, National Aeronautics and Space Administration (NASA), Federal Power Commission, Departments of Defense and Treasury, and Federal Energy

Geologist consulting with draftsman on the mapping of an area being considered for a lease sale.



Administration. Adjacent States, through their Governors' offices, are also asked to submit similar reports. These reports are usually made at least 30 days before a call for nominations.

E. Call for Nominations and Comments

The call for nominations and comments, published in the *Federal Register* and disseminated by a news release, is an official notice to the public to assist in identifying individual offshore tracts that may subsequently be offered for lease. Calls are issued for large contiguous areas that usually embrace several million acres. Interested parties are asked to nominate tracts within the area that they wish to have offered for lease sale because of the oil and gas resource potential. The Department also asks interested parties including the State governments to identify and recommend tracts to be either specifically excluded from oil and gas leasing or to be leased only under special conditions because of conflicting resource values, such as their fishery potential, or because of unique environmental concerns. The call for nominations and comments also solicits particular geological, environmental, biological, archeological, socioeconomic, or other information that might bear upon leasing and development of particular tracts.

F. Tract Selection

The Department of the Interior uses the tract nominations and the resources and environmental information received from all interested parties, as well as its own resource, environmental, technological, and economic information, to select tracts for further analysis in the environmental impact statement.

The selection of tracts is designed to choose those tracts most prospective for production, to avoid obvious environmental hazards to the existence of other resources, to test additional prospective geologic structures and trends, and to protect tracts in imminent danger of drainage from production on adjacent tracts. Certain tracts may be rejected at this stage because of major resource conflicts or overriding environmental considerations. The Governors of the affected States are consulted during this process.

A list of the selected tracts is then published in the *Federal Register* and announced to the press. This set of tracts proposed for leasing—often referred to as a 'tentative tract list—is the geographical basis for an environmental impact statement.

G. Draft Environmental Impact Statement

The National Environmental Policy Act (NEPA), passed by Congress in 1969, requires that all Federal agencies must assess the potential environmental impact of any major Federal action before they take that action. The assessment is intended to identify activities that might result in environmental damage and to result in a decision either not to initiate that activity or to modify the planned activity to avoid the identified environmental damage. The Act also established a Council on Environmental Quality (CEQ) that advises the President annually on the changes in the Nation's environmental quality and promulgates guidelines for agencies to follow in assessing the environmental impact of their activities. The Department of the Interior follows these established procedures, including preparing an environmental impact statement and holding public hearings, before the Secretary decides whether or not to hold an OCS lease sale.

A draft environmental impact statement is prepared in a Bureau of Land Management office near the proposed sale area with the assistance of representatives of the affected States. The academic community, private research groups, and environmental organizations are also consulted. These contacts insure a maximum understanding of the environmental issues and of the local citizens' opinions on them.

The draft statement includes, among other things, a description of the lease proposal, a description of the marine and nearby onshore environment, a detailed analysis on a tract-by-tract basis of possible adverse impacts on the environment, the mitigating measures proposed, the alternatives to the proposal, and the records of consultation and coordination with others in preparation of the statement. It also covers the technology necessary for exploration, development, and production from the proposed lease sale as well as possible onshore socioeconomic impacts.

Pertinent published and unpublished reports and resource evaluations are reviewed in the preparation of the draft statement. When ready, it is submitted to the CEQ and made available to the public for consideration. A notice is published in the *Federal Register*, and the news media are informed by a news release.

H. Public Hearing

At least 30 days after publication of the draft environmental impact statement, a public hearing is held in the vicinity of the proposed lease sale. A notice of the public hearing is published in the *Federal Register,* and a news release is issued. Environmental organizations, the academic community, government representatives, industry, and the public are invited to testify orally or in writing to provide the widest spectrum of views and information possible. All comments submitted for the public hearing are then considered in the preparation of the final environmental impact statement.

I. Final Environmental Impact Statement

The comments and contributions of data received through the public hearings and the official review process are studied, along with any newly acquired information, and incorporated into a final environmental impact statement. The statements are designed to provide a basis for deciding whether or not to hold a lease sale, to withhold particular tracts, or to place restrictions on specific tracts. The final statement is submitted to the CEQ and made available to the public. Notice of its availability is published in the *Federal Register* and disseminated to the news media through a news release.

J. Decision by the Secretary

At least 30 days after the submission of the final environmental impact statement to the CEQ, a final decision is made by the Secretary of the Interior as to whether or not the proposed sale will be held. The Secretary considers all the environmental, resource, economic, and technical information available from the draft statement, the public hearing, and the final statement. Governors of the affected States are consulted by the Secretary during this process.

If the decision is to hold a sale, the tracts to be offered are selected, and the lease terms are established. The lease terms may be tailored to special requirements for any tract, and any tract may be withdrawn at any stage of this procedure on the basis of environmental evaluation.

K. Notice of Lease Sale

If a decision is made to hold a sale of leases, a notice of the oil and gas lease sale is published in the *Federal Register,* giving at least a 30-day notice of the date, place, and time that bids are to be opened, the tracts to be included in the sale, the terms under which the sale will be held, and any special stipulations that may be imposed on particular tracts.

L. Detailed Resource Evaluation of Each Tract

After the announcement of the tentative tract list and during the preparation and review of the environmental impact statement, Survey geologists, geophysicists, and petroleum engineers prepare detailed estimates of the value of the oil and gas on each tract that is being considered for lease. These estimates are based upon geophysical and geological data acquired by industry under permit and by the Department itself, geological data that the Geological Survey has from other wells drilled in the area or other geological studies, engineering data about the facilities and the costs of discovering and producing the oil and gas, and the probability that oil and gas actually exist on a specific tract. Immediately after the lease sale at which bids are read publicly, these estimates are delivered to the Bureau of Land Management for use in determining whether a lease shall be issued.

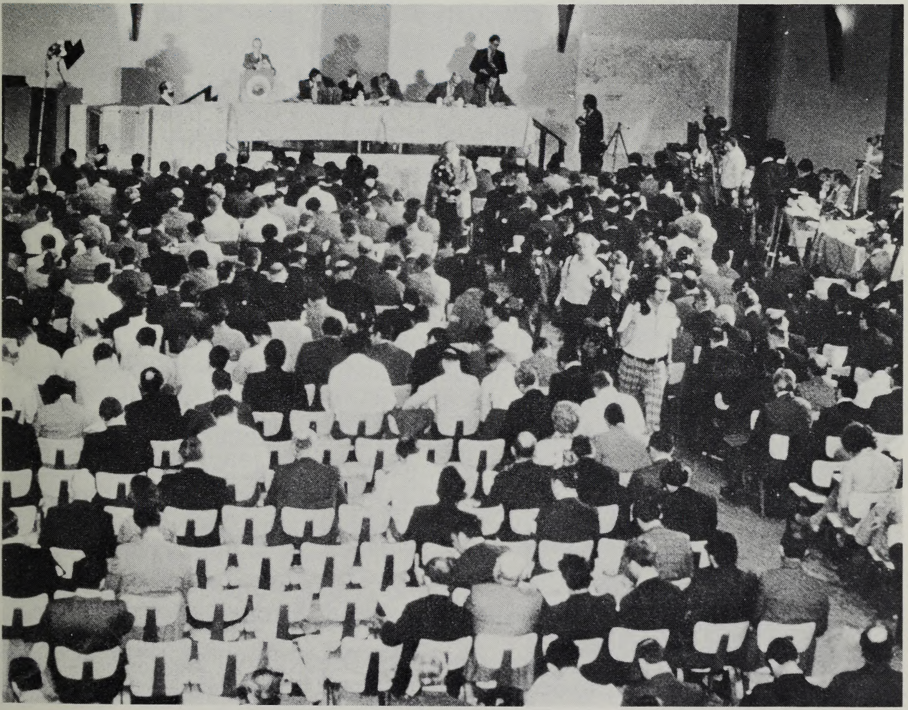
M. Lease Sale

Typically, leases are sold on the basis of a cash bonus bid with a royalty on production fixed at one-sixth its value. A study of alternative bidding systems is currently underway. The manager of the appropriate Bureau of Land Management office conducts the sale, publicly opening and reading all bids. After the public reading, the bids are checked for technical and legal adequacy and sufficient bonus, 20 percent of which must accompany the bid. The Federal Government reserves the right to reject any or all bids.

N. Decision to Accept or Reject Bids

The issuance of an individual lease is based on an analysis of elements related to the Department of the Interior's stated goals of

Bids are opened and read publicly at an OCS lease sale.



orderly and timely resource development, environmental protection, and receipt of fair market value. The decision to award a lease to the highest bidder is made only after the Department has evaluated that bid in terms of its own appraisal of the tract's value.

O. Issuance of Lease and the Lease Contract

When a bid is found acceptable and the decision is made to lease, the remaining 80 percent of the bonus bid and the first year's rental become due. Upon proper receipt of payment, the Bureau of Land Management issues a lease to the successful bidder. Once the lease is issued, collection of rents and royalties and supervision of lease operations become the responsibility of the Geological Survey. Transfer and assignment of leases upon sale from one lease holder to another, lease cancellation and termination, maintenance of lease holder qualifications, and other record-keeping functions remain the responsibility of the Bureau of Land Management.

The oil and gas mineral lease contract grants the right to the lessee to conduct necessary operations to drill and to produce oil and gas from a specific tract of submerged OCS land. The tract covers a rectangular area not exceeding 5,760 acres. The primary term of the lease contract is 5 years during which time oil and gas in paying quantities must be found or drilling or well reworking operations, as approved by the Secretary, must be conducted or the lease is forfeited. If a discovery is made, the contract is extended for as long as oil and gas may be produced in commercial quantities or approved drilling operations are conducted.

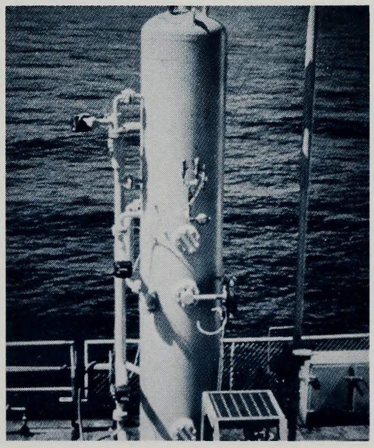
Under the lease contract the lessor (U.S. Government) reserves the right to grant leases for other minerals, to issue permits for geological and geophysical exploration, to approve pipeline and other rights-of-way across the leased land, to take its royalty on production in the form of oil and/or gas, to extract helium from produced gas, and to suspend operations and production. The contract further spells out requirements for surety bonding, royalty, rental payments, and assignments of rights.

The lease contract allows the Department to require that the lessee comply with additional stipulations and regulations that may be issued by the Department to carry out its responsibilities under the OCS Lands Act after the lease is awarded. For example, the Department could require, after the lessee had begun developing his lease, use of certain safety equipment that previously had not been required.

P. Coordination with State and Federal Agencies

Throughout the leasing process, the Department cooperates with NOAA, the Army Corps of Engineers, the U.S. Coast Guard, EPA, and all other Government agencies that play a role in managing the OCS. The Department also seeks liaison with the appropriate coastal State agencies that play an active role in their State's coastal lands. The concern for sound coastal-zone management and liaison with these other Federal agencies does not stop with the issuance of a lease but continues through the exploration and production phases. If oil and gas are found, pipeline permits are issued by the Department of the Interior, but only after all safety precautions are met. A pipeline planning system will be implemented in all frontier areas to minimize both onshore and offshore impacts. Pipeline routing on the OCS is determined after consultation with State officials who have authority over pipeline rights-of-way in State waters and onshore. Special provisions are made to minimize hazards such as the snagging of fishing nets on pipelines. In addition, the Department assists coastal States that request information for use in assessment of the onshore environmental and economic impact of potential oil and gas development offshore.

As earlier noted, each pipeline laid on the OCS requires a permit from the Bureau of Land Management or the Geological Survey that is issued only after all stipulations have been met. Among these stipulations is a requirement that all pipelines in less than 200 feet of water be buried to a depth of at least 3 feet and that all valves and taps be buried regardless of depth. Each pipeline segment taking oil or gas to the platform is equipped with an automatic fail-close safety valve which can be activated by either a high- or low-pressure sensor or manual remote signal. Each pipeline segment taking oil or gas from the platform is equipped with pressure sensors. These sensors will activate automatic safety valves which will shut off any additional production to the pipeline in the event of too high pressure (avoiding a possible rupture) or too low pressure (decreasing the escape of oil and gas). Close attention is given to bottom stability, tides, and currents. Each application is reviewed to see that it meets the most recently established design criteria for adequate strength for the service intended and is subjected to an environmental assessment.



Shore-bound pipelines require permits from both the Federal Government and the adjacent State. Department of the Interior personnel work closely with State authorities to ensure that the requirements of each are fully met and to select safe routes that will result in minimum environmental damage and adverse onshore impact. Only after oil or gas are found in commercial quantities is it possible to analyze the impact fully and to develop final plans for the routing of a pipeline and the associated onshore activity.

VI. EXPLORATION AND DEVELOPMENT BY THE LESSEE

The lease contract grants the lessee 5 years in which to discover petroleum in commercial quantities or to undertake drilling or well reworking as approved by the Secretary, on the lease which covers an area not exceeding 5,760 acres. If a discovery is made, the lease will be extended for as long as oil and/or gas may be produced. Therefore, after receiving a lease, the lessee drills one or more exploratory or "wildcat" wells. If these wells find petroleum in commercial quantities, additional wells are drilled to delineate and develop the reservoir. One or more production platforms are constructed and other production facilities are installed. Production from a reservoir can last many years and may be extended through the use of secondary and tertiary extraction techniques. At some time, however, the cost of producing additional petroleum becomes greater than the value of that petroleum. Then the wells are cemented in below the level of the seafloor, and the projecting pipe and platform are removed.

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Note

A. Exploratory Drilling

Exploratory drilling ordinarily starts in the more promising areas within a few months after the lease is issued, although some leases may not be tested for 2 or 3 years. Mobile drilling vessels equipped with a derrick, hoisting equipment, rotary table, mud pumps and tanks, and other equipment are used for exploration. The equipment is similar to that used for onshore drilling, but some special modifications are made for operation in the marine environment.

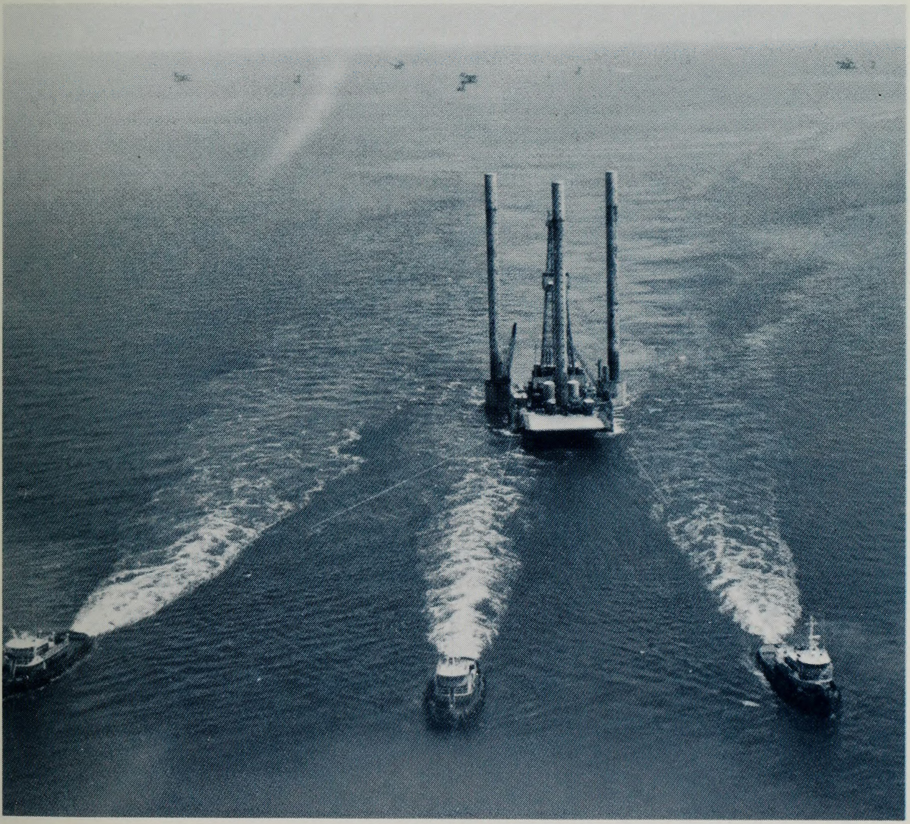
All exploratory wells (and later development wells) are drilled in accordance with established guidelines. As the well is being drilled, casing and drilling fluid (mud) programs are followed as approved in the application. Drilling mud normally keeps the well under control, but subsurface pressures greater than those exerted by the mud column can cause flow of oil, gas, or water into the well bore. To control this flow, blowout preventers are required. The blowout preventer assembly is a series of large valves attached to the top of the casing. The Geological Survey requires that remotely controlled, hydraulically operated blowout preventers be used during all drilling operations. Cuttings from the well and drilling mud must be carefully collected and disposed of. As the well is being drilled, metal casing is installed in the well both to prevent petroleum from escaping into other rock formations and to protect the environment.

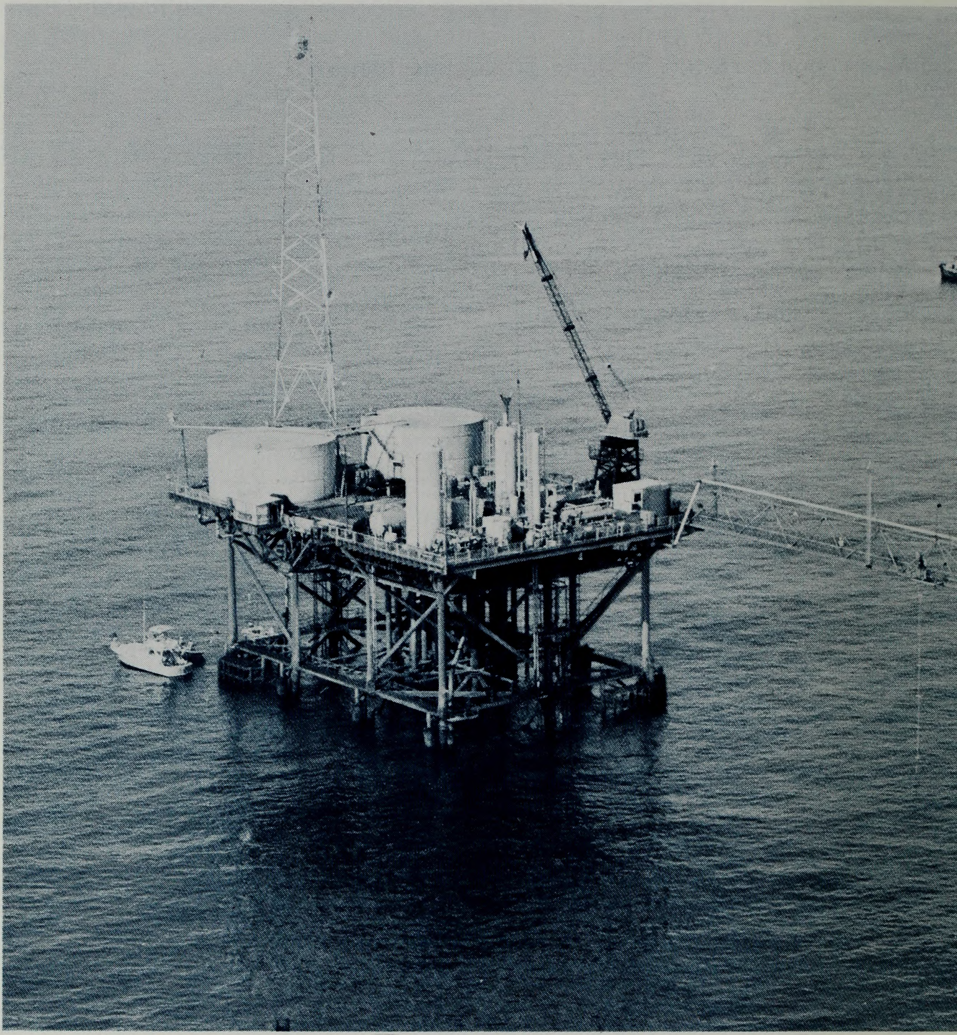
When an exploratory well reaches producible petroleum, additional wells are usually drilled to delineate the areal extent of the field or reservoir and to aid in siting production facilities.

B. Production

After the exploration is completed and before commercial production is begun, a plan for development must be approved by the Geological Survey. The Survey reviews the development plan to insure that safety and environmental standards are met. Facilities for drilling development wells and for handling production from the field are then installed. These facilities must serve throughout the productive life of the field, which may be 15 to 40 years. Production facilities normally consist of drilling and production platforms, transportation systems to shore, and onshore treating and storage plants which render the oil and gas acceptable for processing in refineries and transporting through common-carrier pipelines.

This bottom founded, self-elevating drilling vessel, under tow to a drilling location, is commonly called a "jack-up" because the hull is raised out of the water with legs resting on the ocean floor.

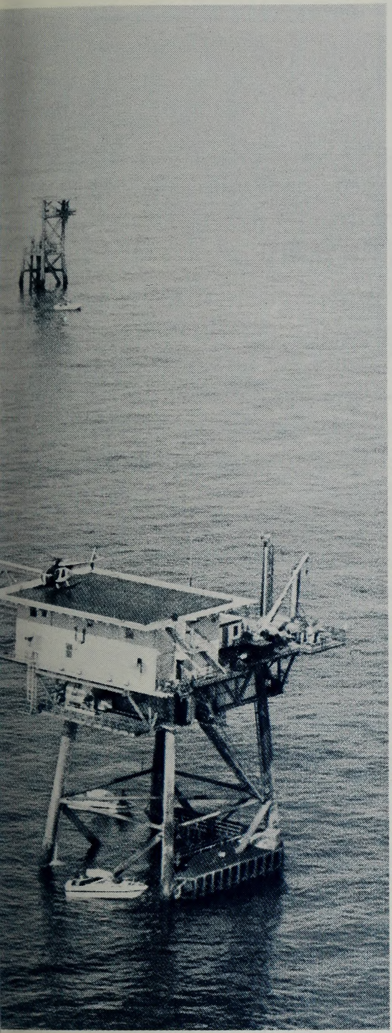


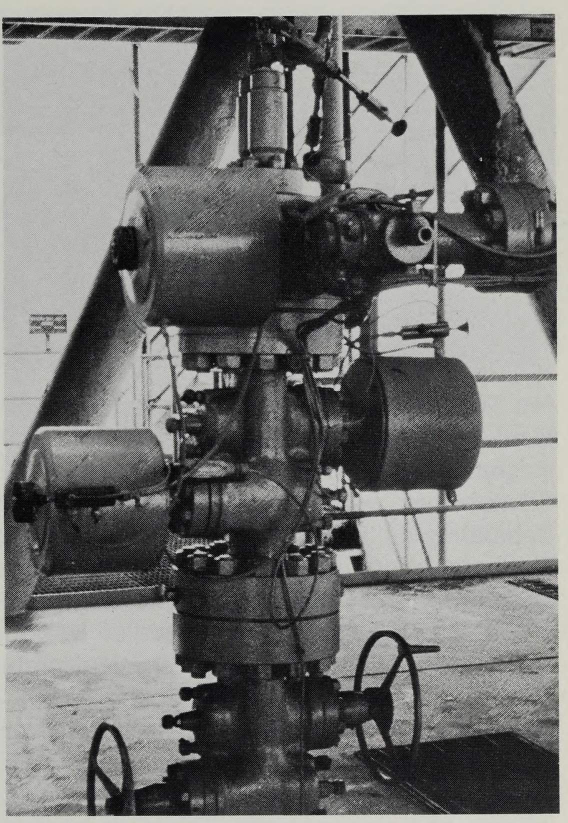


A production platform in the Gulf of Mexico—a fixed steel structure attached to the ocean floor.

A typical platform is a steel structure attached to the ocean floor by pilings. This structure is designed to withstand the extreme conditions of expected wind, wave, and seismic (earthquake) forces.

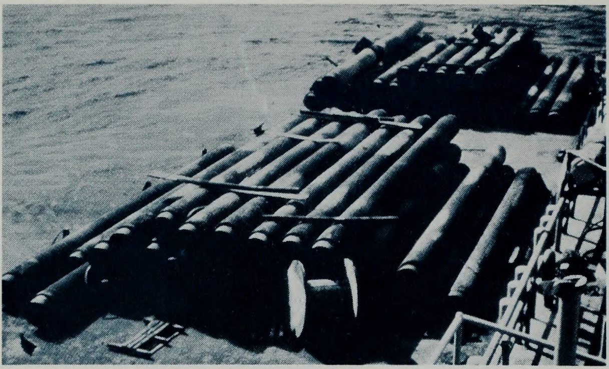
Development wells are drilled from an offshore platform in a gradual curve (deviated from the vertical) by controlled directional drilling. With this method, as many as 60 development wells can be drilled from one platform, thus reducing the number of platforms required. The basic required procedures for drilling wildcat wells also apply to these development or production wells.





The "Christmas tree"—a part of the oil-flow system controlling well production.

After a development well is drilled and cased, the casing is perforated with shaped explosive charges or bullets to establish a path for oil or gas to flow from the reservoir rock into the well bore. Another string of pipe, called tubing, is run inside the casing as a conduit through which the oil or gas flows to the surface. At the surface, flow is controlled by a set of wellhead valves placed on top of the tubing and commonly referred to as the "Christmas tree." The subsurface safety valve and surface automatic wellhead valve are required elements of this flow control system. When the field is depleted, the wells will be plugged using an appropriate plugging program, the platform will be removed, and the area will be allowed to revert to its original condition.



Pipeline lay barge in operation.

The preferred means of transporting oil and gas to shore is through pipelines, although tankers or barges may be used in some instances. In general, a 16-inch oil pipeline can carry 90,000 barrels of oil and a 12-inch gas pipeline can carry 40 million cubic feet of gas per day. Depending on the volume, such a system may be capable of transporting the production from several platforms. Submarine pipelines are constructed of steel pipe coated and wrapped for corrosion protection and placed on the ocean floor. In water less than 200 feet deep, they are buried not only for their own physical protection but to minimize their interference with other uses of the ocean waters.

Oil produced from a well usually contains some water in the form of an emulsion. Gas may also contain water and liquid hydrocarbons. Therefore onshore treating facilities consist of separation vessels and holding and storage tanks. The oil is treated with heat and chemicals to put it in a salable condition for movement to a refinery. The gas is dehydrated, and liquid hydrocarbons are removed by compression before distribution to consumers.

C. Lead Time

A lead time of several years is generally required to discover, develop, and market oil or gas in a usable energy form. Usually by the time a lease is issued, most of the detailed geological and geophysical investigations have been completed. If a lease does prove productive, statistics show that the discovery usually will be made 1.5 to 4.5 years after the lease sale. In response to a 1974 survey by the Bureau of Land Management, 25 oil and gas or related companies made estimates of the time period required, after discovery, to achieve initial and peak production in 17 major OCS areas. The companies estimated that it would take 2.5 to 6.5 years to attain initial production and 5.5 to 9.5 years to reach peak production. Thus, the total time after a lease sale to achieve initial production would be 4 to 11 years and to attain peak production would be 7 to 14 years.

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Note

VII. SUPERVISION OF LEASED LANDS

The Geological Survey supervision of leases involves the safety of personnel, use of safe equipment, collection of rentals and royalties, conservation of resources, and prevention of pollution. Adherence to the rules and regulations is enforced through field inspections and review of applications and proposed plans.

A. Outer Continental Shelf Orders and Notices

Assurance of safe, clean operations is accomplished, as noted in section IV, by implementation of the Code of Federal Regulations supplemented by the OCS Orders and Notices issued to the lessees and operators. The regulations and the orders and notices are frequently reviewed and revised at the suggestion of the public, local governments, and industry to reflect changing technology and changing environmental and safety standards. They also define the responsibility and authority of the Survey to regulate operations, to exercise control over drilling and production, and to require that equipment be adequate for the safe conduct of operations. This is accomplished by safety and operating procedures specified in the regulations and the orders and notices.

B. Supervision of Drilling Operations

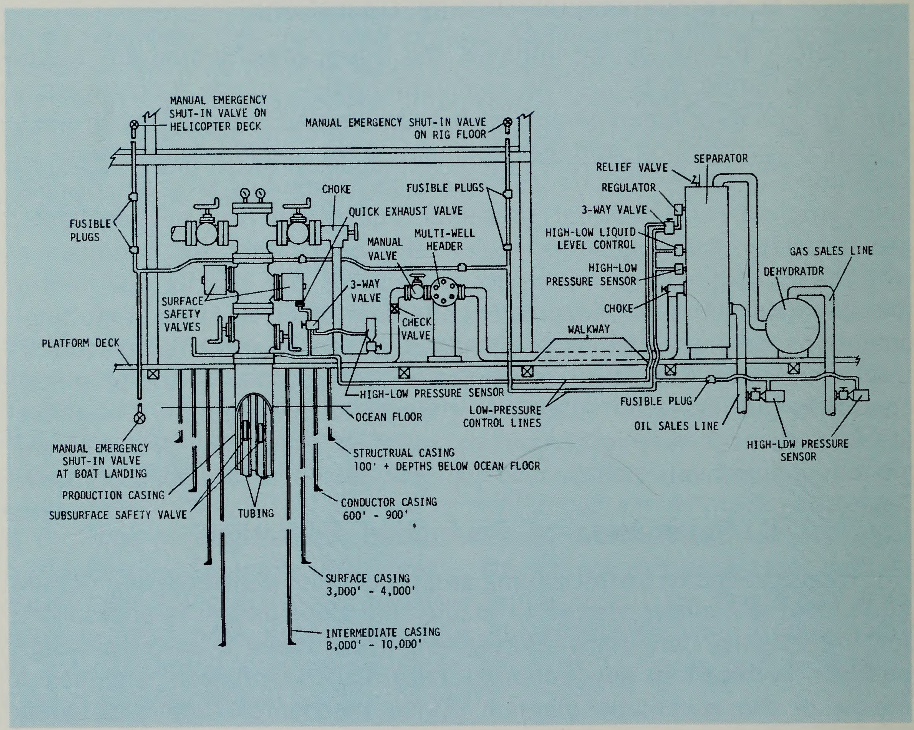
Before drilling can be initiated, the lessee must submit an "Application for Permit to Drill." The application must include a contingency plan for handling emergencies such as spills and fires during drilling, a plan of exploration and development, and specific information on such items as the drilling rig, casing design, cementing program, drilling fluid program, and blowout preventer equipment. Survey geologists, geophysicists, and engineers review the application for compliance with the regulations and the orders and notices and look for and inform the operators about any hazardous conditions, such as surface faulting, potential slide areas, shallow gas pockets, or deeper abnormal pressures. If an anticipated hazard is not adequately safeguarded by the proposed operation, the lessee is required to change the drilling plan. Only after the Geological Survey is completely satisfied that safety and environmental requirements can be met will the permit to drill be approved.

C. Supervision of Production Operations

Applications to install drilling and production platforms and related equipment are also reviewed to insure that their design is appropriate for the existing conditions. Survey engineers make a systems-design analysis to discover any potential hazards. The analysis includes a review of the schematic diagram of the mechanical flow and safety system to insure that the production system conforms to safety standards. The design of the structure, the production processing equipment, the personnel facilities, and the incoming and departing pipelines are also checked against requirements to ensure proper integration of these components into an effective platform safety system. A typical design will provide a series of safety valves and devices: a subsurface safety valve (storm choke), an automatic fail-closed wellhead valve, a flowline protected by high- and low-pressure sensors, a check valve, hydrocarbon handling pressure vessels protected with high- and low-pressure and liquid-level sensors, and shipping pumps protected by high- and low-pressure sensors. Emergency shut-in controls, located at strategic points on the platform, afford backup means for manually stopping production of all platform wells.

When a field is depleted and abandonment is necessary, the operator must plug the wells in accordance with Survey requirements. All oil and gas zones must be isolated, and any freshwater zones must be protected with cement plugs. An additional cement plug is required just below the ocean floor to insure a permanent seal. All casing is cut off below the ocean floor, and the location is cleared.

Diagram of a safety valve system of a typical 12,000 foot well.



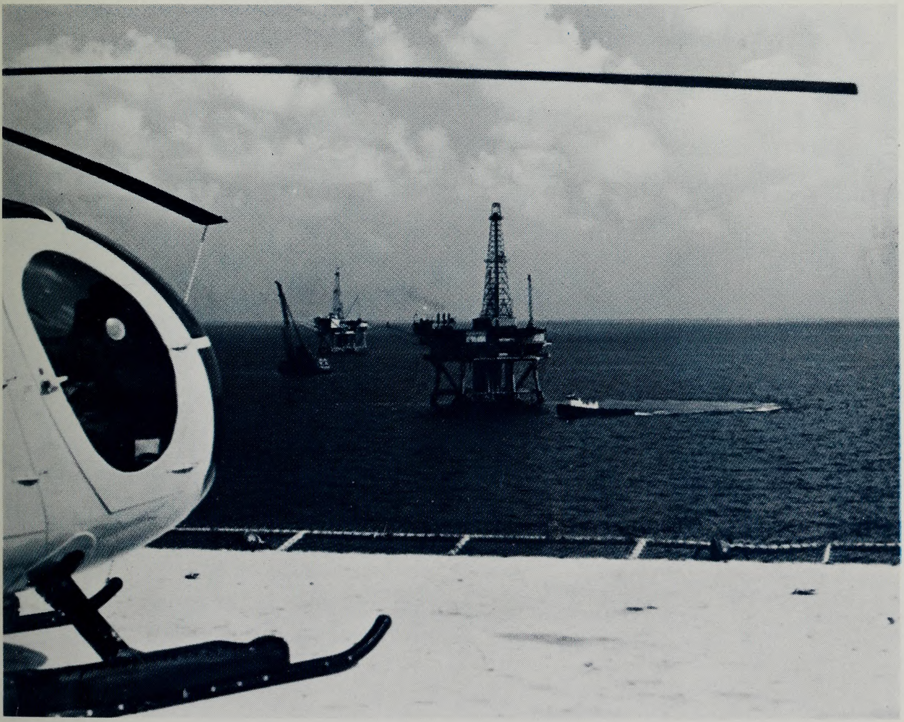
D. Field Inspections

The Survey has the specific responsibility to inspect, monitor, and document the day-to-day activities and operations of the petroleum industry on the OCS by on-site inspection and witnessing of the testing of safety and pollution-control equipment.

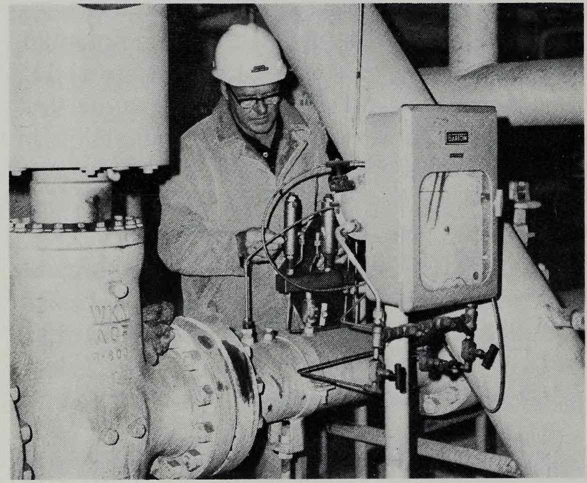
To facilitate inspections, the Code of Federal Regulations and the OCS Orders and Notices have been condensed into a checklist composed of questions that are answered by the inspection team either positively for compliance or negatively for noncompliance. The checklist used by the inspectors is a listing of potential incidents of noncompliance, or "PINC's." The actual incidents of noncompliance observed are called "INC's." Each discovery of an incident of noncompliance requires that the inspector take a prescribed enforcement action that will result in either a warning or a shutdown of operations. If the incident results in a shutdown, the condition must be corrected before operations can be resumed.

Inspection teams composed of petroleum-engineering technicians visit the OCS facilities. They travel to the sites by helicopter and boat and observe the water surface for any incidents of pollution while

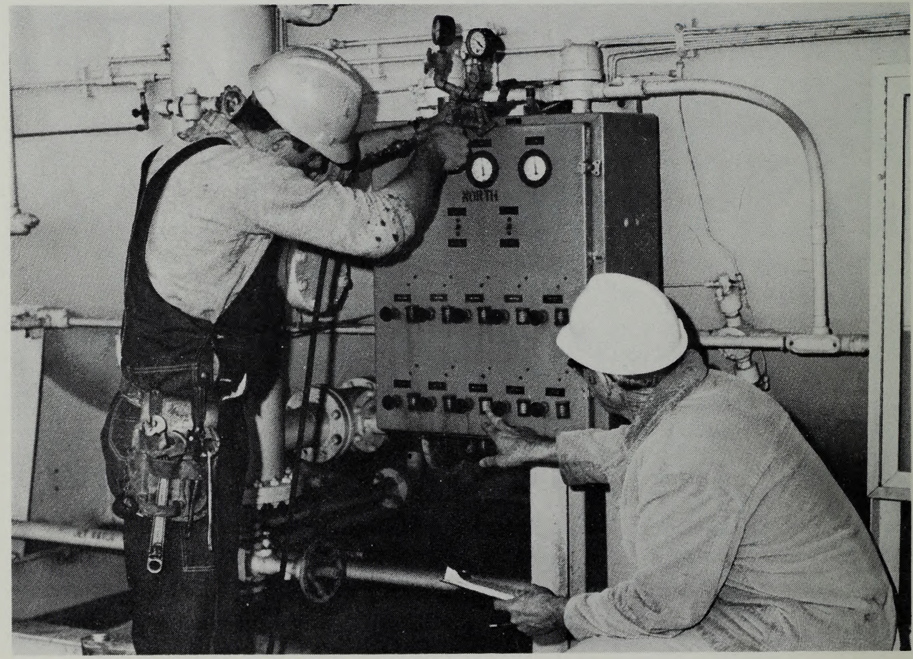
Helicopters are used to transport personnel to, and between platforms.



en route. Other flights are made for the sole purpose of pollution detection. Inspections of drilling rigs and related equipment in the Gulf of Mexico are conducted at least once during the drilling of each wildcat well and during the drilling of the first development well from a platform. New production facilities are inspected at the start of operations. All major platforms are scheduled for inspection semiannually. All drilling rigs and production platforms in the Dos Cuadras Field in the Santa Barbara Channel are inspected daily.



Inspections are conducted during drilling and production on an offshore rig. Here men check Hi-Lo pressure sensors on gas line for leakage (left), and they test alarm light on Chem Electric tester control panel (bottom).

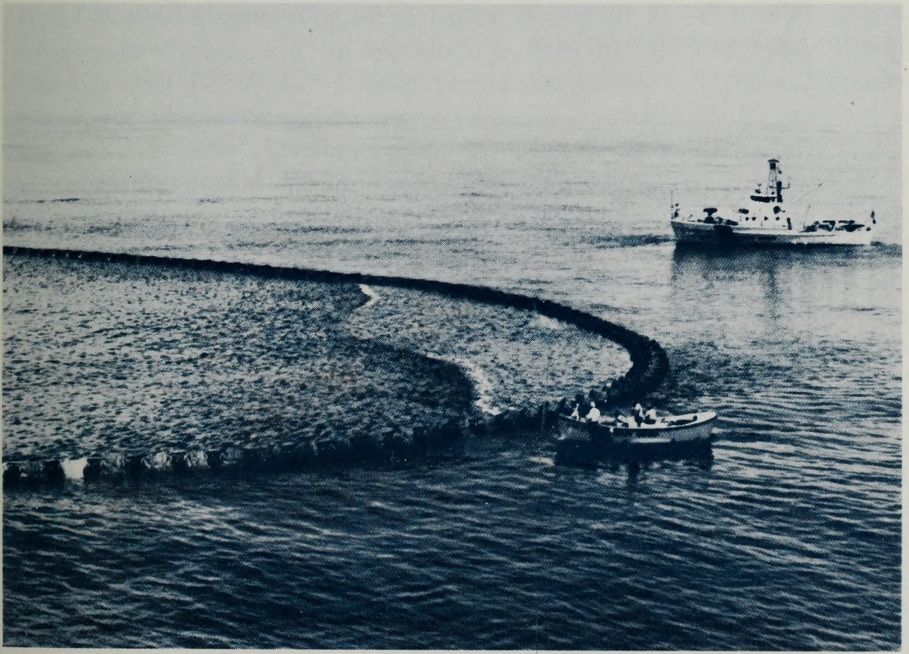


E. Action in the Event of Oil Spills

The safety system devised for offshore operations has the following principal objectives: (1) to prevent accidents from happening, (2) to contain them and minimize the effects if they do happen, (3) to repair the damage that may result from a serious accident, (4) to eliminate any permanent environmental effects, and (5) to utilize the experience gained to prevent similar accidents.

Despite all the improvements in regulations, equipment, and inspection procedures, there remains a small chance that accidents may occur during OCS operations. Two levels of contingency plans can be activated to minimize damage if an accident does occur in spite of all precautions. Before drilling operations can commence, the operator must file an individual lessee contingency plan for initiating corrective action to control and remove pollution. In addition, the National Oil and Hazardous Substances Pollution Contingency Plan provides a general framework of coordinated and integrated responses to pollution spills, primarily by the U.S. Coast Guard, Geological Survey, and EPA. The Survey has exclusive authority for coordinating the measures to abate the source of pollution, and the Coast Guard coordinates and directs the measures needed to contain and remove the pollutants. The EPA is responsible for assuring optimum national-level coordination among

Oil spill containment operation.



the various Federal agencies and for providing technical expertise on environmental pollution-control techniques, including assessment of damages and environmental restoration.

All oil spills on Federal leases must be reported immediately to the Geological Survey. Oil spills that exceed 50 barrels must also be reported orally to the Coast Guard and the Regional Director of the EPA and confirmed in writing.

The Survey's accident investigation procedure is determined by the severity of the spill. A Survey inspection team is sent to the scene as soon as possible to oversee the actions taken under the lessee's contingency plan and to approve any modifications deemed necessary. As long as all appropriate cleanup actions are being taken by the lessee, the Coast Guard maintains surveillance of the proceedings; however, upon request from the Survey, the Coast Guard assumes direct control of the cleanup operations. Oil-spill cleanup cooperatives, formed by the oil companies, maintain large inventories of booms and other containment devices, and cleanup equipment that can be transported to any spill site. Thus, trained manpower and the latest and most efficient equipment are readily available to meet an emergency.

An Investigation Report Form is completed by the Survey team and is available for public inspection at the office of the Oil and Gas Supervisor. The information derived from the reports and from discussions with operators and the Survey team is studied so that future accidents can be prevented. OCS Safety Alerts are published to notify all operators of the circumstances surrounding particular accidents so they can take appropriate preventive actions.

F. Unitization

Frequently a single reservoir may underlie leases belonging to two or more separate owners. In such cases a strong motivation exists for each owner to produce as much oil and gas as possible from his own lease to prevent drainage of oil and gas to adjoining leases. In the past, this has led to needless and costly drilling and large-scale waste of oil and gas.

One especially effective conservation measure to curb such wasteful practices is unitization. This is the practice of pooling all interest, ownership, and control in a prospective or producing oil and gas field, or part of a field, through a "unit agreement" that provides for a single operator or company to develop and operate several leases as though they were one. Unitization can be used to maximize oil and gas recovery from reservoirs with multiple owners; to eliminate the drilling of unnecessary wells; to reduce development and production costs; and to protect the correlative rights of operators, lessees, and royalty interest owners. Unitization is usually required for the effective use of most secondary and tertiary recovery operations where the petroleum reservoir involves more than one lease tract. Ownership of production is in proportion to the percentage interest ascribed to each tract, and each lessee shares in production and expenses of the unit.

In supervising the development and production of OCS leases, the Survey encourages voluntary unitization, initiates the formation of units where it is deemed necessary for conservation purposes, and administers and supervises operations in approved unitized areas.

G. Production Control

Production from some reservoirs at excessive rates results in the wasteful dissipation of reservoir energy and the reduction of the total amount of oil and gas that may ultimately be recovered.

In its task of conserving natural resources, the Survey reviews the lessee's proposed rate of production—and ultimately approves a maximum rate—to assure that the petroleum is not being produced so quickly as to reduce recoverable petroleum.

H. Revenue from OCS Leases

Revenue from the OCS, consisting of lease bonuses, royalties, rentals, and minimum royalties, is deposited in the U.S. Treasury as miscellaneous receipts. As described in Section V, the Bureau of Land Management receives the cash bonus payments and the first year's rental for the leases when the leases are awarded to the successful bidder. The Survey collects annual rental until production starts or the lease terminates and also collects royalty payments if petroleum is produced during the life of the lease.

The OCS Lands Act provides that the royalty payment must be at least 12½ percent of the value of production. Actually, the lease contract for all tracts issued on a cash bonus basis has a specified 16⅔ percent royalty. The Federal Government reserves the right either to accept a cash payment from the lessee for the royalty petroleum or to receive a sixth of the petroleum produced. During the 1973-74 oil embargo, the government chose to take its royalty as petroleum and sold it to independent refineries that had lost their ordinary supply. To ensure that the Federal Government receives the correct amount of royalties, the Geological Survey operates a sophisticated accounting system including, in addition to reports on actual production on leases, inspecting and testing of meters, cross-checking of sales receipts, and verifying the reasonableness of transportation cost allowances.

In 1973 the people of the United States received royalty payments of $401.1 million for the OCS products produced in that year and $3,082.5 million in bonuses.

By law, a portion of the revenue from the OCS is transferred by the U.S. Treasury to the Land and Water Conservation Fund. In the past 6 years, OCS revenue has provided 71 percent of the statutory funding of $1.6 billion and has contributed a total of $1.1 billion to the Fund. The Land and Water Conservation Fund is the largest Federal grant-in-aid program of assistance to States, counties, and cities for the acquisition and development of public parks, open spaces, and recreation lands and water. The fund also pays the acquisition costs of adding authorized areas to the national systems of parks, forests, wildlife refuges, wild and scenic rivers, and scenic and recreational trails.

VIII. SUMMARY OF ACTIONS TO IMPROVE SAFETY AND POLLUTION CONTROL

Since the Santa Barbara oil spill in January 1969, a great many changes have occurred in OCS oil and gas operations to ensure greater safety and better environmental protection. The Federal Government, including the Department of the Interior, EPA, and the Coast Guard, has tightened its regulations and increased its inspection activities. The industry, through the American Petroleum Institute and individual company efforts, is increasing its research and development to develop safer equipment and procedures and is directing additional efforts toward training and instructing its personnel to avoid accidents. These efforts can be expected to much improve the safety of OCS operations.

A. Studies of OCS Operations

In the past 5 years several major studies have been made of OCS oil and gas leasing procedures, including a technological study made by an interdisciplinary research team at the University of Oklahoma (Kash, et. al., 1973), an engineering study by the Marine Board of the National Academy of Engineering (1972), and an environmental assessment made by the Council on Environmental Quality (April 1974). In addition, the Survey has made two formal studies of its lease supervision program—one a systems analysis by an inhouse group and another by a team of quality control and management specialists from the National Aeronautics and Space Administration (1971). All the findings and recommendations of these several studies have been reviewed, and a significant number have already been adopted.

B. Geological Survey Actions to Improve Safety and Pollution Control

Since the Santa Barbara spill, a number of substantive changes have been made in the size, scope, and procedures of the Survey's lease supervision program to prevent another spill of that type and to ensure safety and environmental protection. The following list of the most significant changes includes a number of recommendations that have been adopted from the previously identified studies.

- The inspection staff has been increased tenfold.
- Six new OCS Orders and Notices have been issued, and nine others have been revised. Orders are constantly evaluated and revised to reflect new technical developments and new lease management policies. Procedures have been adopted for general public and adjacent coastal State review of and suggestions for the OCS Orders and Notices.
- Inspection procedures have been standardized and systematized to insure consistent and objective inspections and enforcement actions.
- A "Safety Alert" system has been established to notify all operators about the nature and cause of failures and accidents so they can take appropriate actions to prevent similar events.
- Accident investigation procedures have been established and reports of major accidents are made available to the public.
- Operators are required to submit contingency plans for oil spill containment and cleanup before any drilling can begin. Large amounts of absorbent materials, booms, powerboats, and other oil containment devices are now available both in the Gulf of Mexico and off the Pacific Coast through cleanup companies supported by a consortium of oil companies involved in offshore operations.
- A Review Committee has been established under the aegis of the National Academy of Engineering to serve as an independent audit of the effectiveness of the Geological Survey's operations and procedures.

The effectiveness of these actions is beginning to be reflected in the statistics about OCS operations. Since the Santa Barbara spill, the number of fixed structures on the OCS increased from 1,575 at the beginning of 1969 to 2,084 on January 1, 1975. During this 5-year period, 4,913 new wells have been drilled in the Gulf of Mexico, and

only 4 have caused a major oil spill (over 10,000 gallons). In the Santa Barbara Channel, 240 wells were drilled without incident. The total of all major accidents from both drilling and production during this period was 15, of which only 9 resulted in any significant oil pollution.

(from material provided by M. V. Adams and D. D. Bajema)

Note: U.S. Geological Survey Circular 720, Mineral Resource Management of the Outer Continental Shelf expands the material presented in this booklet.

Photograph credits

U.S. Geological Survey (M. Reitz and L. Tracy); U.S. Bureau of Land Management; and U.S. Coast Guard.

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SELECTED STATISTICS

	Gulf of Mexico	California	Oregon Washington	Total
1954 through 1974				
Tracts offered	4,919	240	196	5,355
Tracts leased	2,153	129	101	2,383
Acres leased	9,623,149	678,121	580,853	10,882,123
No. of wells drilled	12,389	314	12	12,715
Oil and condensate production (1,000s of barrels)	3,487,021	126,346	–	3.613.367
Gas produced (billion cubic feet)	24,109	57	–	24,166
Bonuses (millions)	$14,156.6	$636.7	$34.5	$14,827.8
Royalties (millions)	$3,109.3	$71.6	–	$3,180.9
Production value–all products (millions)	$18,829.4	$429.5	–	$19,258.9
Calendar Year 1974				
Acres leased	1,762,158	–	–	1,762,158
Active leases (12-31-74)	1,514	68	–	1,582
Productive leases (12-31-74)	712	19	–	731
No. of fixed platforms (12-31-74)	2,054	5	–	2,059
Oil and condensate production (1,000's of barrels)	343,817	16,777	–	360,594
Gas produced (billion cubic feet)	3,509.2	5.5	–	3,514.7
Bonuses (millions)	$5,022.9	–	–	$5,022.9
Royalties (millions)	$542.6	$13.0	–	$555.6

OCS wells (Gulf of Mexico and Santa Barbara Channel as of September 1975)
- Range of depth–5,000 to 20,000 feet
- Greatest depth of well drilled–20,000 feet
- Greatest depth of water (exploratory well)–1,780 feet
- Greatest depth of water for producing well–373 feet
- Greatest distance from land for producing well–109 miles
- Greatest distance from land for well drilled–138 miles
- Average number per platform–5 to 50

Miscellaneous
- Greatest distance of platform from shore–125 miles
- No. of operating companies–72
- Average number of bids per tract leased–4
- Miles of pipeline on OCS–6,800

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As the Nation's principal conservation agency, the Department of the Interior has responsibililty for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.

MARCH 3, 1849